



# Congressional Record

## Unitary Wind Tunnel Plan Act

### 1949–1999

#### 50th Anniversary

By Randy Weiler  
AEDC Public Affairs

Our home away from home was destined to be AEDC. It nearly landed in Washington state or Arizona instead of Tennessee, but the center’s original acronym still would have been AEDC.

Long before there was an Arnold Engineering Development Center as we know it today, there was Air Engineering Development Center — a name without a street address and state to call home.

And before the Air Engineering Development Center, there was the New Air Forces Development Center. There even was a Proposed New Air Forces Development Center.

In the middle of “Air,” “New Air Forces,” “Proposed” and “Arnold,” there was the Unitary Wind Tunnel Plan Act. This was a two-fold document, passed by both the Senate and House of Representatives in the U.S. Congress, paving the way for proposed \$1 billion-plus world-class research, development and testing facilities for the Air Force, Navy, National Advisory Committee for Aeronautics (predecessor to NASA) and universities. The plan included five wind tunnel facilities, three with NACA facilities and two at AEDC.

The Unitary Wind Tunnel Plan Act was Public Law 415 of the 81<sup>st</sup> U.S. Congress — an act “to promote the national defense by authorizing a unitary plan for construction of transonic and supersonic wind-tunnel facilities and the establishment of an Air Engineering Development Center.”

“It truly was a marvelous piece of work,” said David Hiebert, center historian, who has researched this thoroughly.

The act that wove its way through Congress and received President Harry S. Truman’s signature had been jointly authored and submitted by NACA and the DoD. This culminated a four-year drive to provide post-World War II measures to help our country to defend itself.

Another piece of legislation, the initial funding for \$100 million, also passed.

“There’s a huge misconception that people have, and it’s understandable that they have this misconception,” Hiebert said. “The public law, in both its parts ... authorized a Unitary plan for the construction of transonic and supersonic wind tunnel facilities and the establishment of an Air Engineering Development Center.

“Lots and lots happened from 1945 to ‘51. The short history (of the Unitary plan) talks about the research and development board and NACA and the tremendous negotiations that went on to make the Unitary plan and the Air Engineering Development Center act come to pass.”

Visionary Gen. Henry H. “Hap” Arnold, head of the Army Air Force in World War II, set the wheels in motion much earlier in the decade. He realized the need for such a venture, but with a war going on with Germany and Japan, the nation could not act at that time.

Near the end of the war, Arnold sent Dr. Theodore von Karman, one of the world’s leading aeronautical scientists, a memorandum about the Army Air Force long-range developmental program. They met to discuss it at LaGuardia Airport in New York.

Arnold asked von Karman and his close associate, Dr. Frank Wattendorf, to form the Army Air Force Scientific Advisory Group.

Minus von Karman and going in behind victorious allied forces, the group visited German research facilities in May 1945.

A month later, Wattendorf went to Paris to write his findings. While there, he learned his father had died. Wattendorf wrote the Trans-Atlantic Memo — the proposal for a New Air Forces Development Center sent to Major Gen. Franklin O. Carroll II — traveling by plane home for his father’s funeral.



The Scientific Advisory Group, formed in 1944, developed a blueprint for the Air Force.

at Grand Wash Cliffs or in nearby Huntsville, Ala.

With existing facilities in place, Washington state was the clear favorite. It stood No. 1 until an official indicated geographical concerns because it could be an easy target for foreign attack. Politics — a water dispute between California and Arizona — knocked Grand Wash Cliffs out of the picture.

Coffee County emerged victorious because it stood in the heart of the Tennessee Valley Authority, there was an abundant water supply and the Army, which considered closing Redstone Arsenal in Huntsville, had second thoughts when the Air Force considered the Redstone site.

Sen. Kenneth D. McKellar (D-Memphis) pitched the Camp

**Public Law 415-81st Congress Title I highlights**  
*(Section 101.) The National Advisory Committee for Aeronautics and the Secretary of Defense are hereby authorized and directed jointly to develop a unitary plan for the construction of transonic and supersonic wind-tunnel facilities for the solution of research, development and evaluation problems in aeronautics, including the construction of facilities at educational institutions within the continental limits of the United States for training and research in aeronautics, and to revise the uncompleted portions of the unitary plan from time to time to accord with changes in national defense requirements and scientific and technical advances.*  
*(Section 102.) ... in support of long-range fundamental research at educational institutions within the continental United States ... at a total cost not to exceed \$10,000,000.*  
*(Section 103) ... (a) Committee is authorized to expand the facilities at its existing laboratories by the construction of additional supersonic wind tunnels, including buildings, equipment and accessory construction, and by the acquisition of land and installation of utilities. (b) ... authorized to be appropriated such sums as may be necessary to carry out the purposes of this section, but not to exceed \$136,000,000. (c) The facilities ... shall be operated and staffed by the committee but shall be available primarily to industry for testing experimental models in connection with the development of aircraft and missiles ...*  
*(Section 104) Secretary of the Navy authorized to expand naval facilities at the David W. Taylor Model Basin, Carderock, Md., ... constructing a wind tunnel, including buildings, equipment, utilities and accessory construction, at a cost not to exceed \$6,600,000.*

**Title II highlights**  
*(Section 201.) The Secretary of the Air Force is hereby authorized to establish an Air Engineering Development Center, and to construct, install and equip (1) temporary and permanent public works, including housing accommodations and community facilities for military and civilian personnel, buildings, facilities, appurtenances and utilities; and (2) wind tunnels in implementation of the unitary plan referred to in title of this Act; and to maintain and operate the public works and wind tunnels authorized by title II of this Act.*  
*(Section 202.) To accomplish the purpose of this title, the Secretary of the air Force is authorized to acquire lands and rights pertaining thereto, or other interest therein, including the temporary use thereof, by donation, purchase, exchange of Government-owned lands, or otherwise, and construction under this title may be prosecuted without regard to section 3648*  
*Sections 202, 203 and 204 pertain to the Secretary of the Air Force "authorized to acquire lands and rights ... employ such civilian personnel as may be necessary to carry out the purpose of this title ..." and an appropriation "(a) not to exceed 100,000,000 ... for the establishment of the Air Engineering Development Center ... including expenses for necessary surveys and acquisition of land and (b) such sums as may be necessary to carry out the other purposes of this title."*

“The person who really gets the short shrift and always overlooked is Frank Wattendorf,” Hiebert said. “We tend to talk about the vision of von Karman and Arnold, which was important, but Frank Wattendorf was the person who produced the Trans-Atlantic memorandum ... which led to the creation of what we now call AEDC.”

The Unitary plan is the reason the center is here in Coffee County, but the two-titled plan easily could have placed AEDC in the Northwest at Moses Lake, Wash., in Arizona

Forrest site, with Gov. Gordon Browning and the Tennessee General Assembly offering to donate 33,000 acres of land that was the former site of the Army’s World War II Camp Forrest.

At least three times amendments have been made to the original Public Law 81-415, Hiebert said. Public Law 85-568 in 1958 reflected the United States vs. Soviet Union race into the space age “is not one the United States can ignore or defer. Our national survival requires it.”

In 1970, the Aeronautical Facilities Working Group drafted a starting point for amending or replacing Public Law 81-415 with significant suggested changes like:

- Replacement of “transonic and supersonic” by “subsonic, transonic, supersonic and hypersonic”
- Change the first paragraph to read:

“To promote the national defense and United States aerospace leadership by authorizing a unitary plan for construction of subsonic, transonic, supersonic and hypersonic wind tunnel facilities at the national test centers.”

Hiebert said he is amazed by the genius, wisdom and government funding to place AEDC on the map.

“The Scientific Advisory Group was an awesome group,” he said. “It had the great names in industry and academia to explore the options. That was the great contribution to the Unitary plan. By doing that, these well-educated, dedicated individuals were able to address specifically the larger vision and requirements of the actual facilities.

“Yes, there might have been an AEDC. There might have been some of the NASA facilities that were provided by the act, but they would not have been anywhere near as dynamic and vision driven as they became. It was really an example of a clearly focused vision that was activated by people who understood how to communicate that idea to people who could make it happen and share the vision.

“This center was the No. 3 priority of the defense establishment (DoD). It was the No. 1 project of the Air Force at that time. So the commitment was really awesome.”

# Remembering AEDC’s ‘forefathers’



Arnold

## General of the Air Force Henry H. “Hap” Arnold

General of the Air Force Henry H. “Hap” Arnold — World War II commander of the Army Air Forces and the only airman to hold five-star rank (general of the Army, the general of the Air Force). Called the Father of the United States Air Force, his vision and ideas saw the nation’s need for a stronger air defense and the research facilities to keep our Air Force a leader in flight technology during and after World War II. As a child, he loved to pull pranks and explore. Research, development and testing were the route to go, and facilities were needed. His efforts and the ensuing chain-reaction led to Congress passing and President Truman signing legislation that led to the Unitary Wind Tunnel Plan Act and the establishment of an Air Engineering Development Center.



von Karman

## Dr. Theodore von Karman

Dr. Theodore von Karman — He had that in-car meeting with Arnold at LaGuardia Airport in 1944, discussing America’s future defense needs. He oversaw the formation of the scientific advisory group that was proactive in determining the need for advancements in aviation research. As chairman of the group, he wrote the recommendation that a center be established for research, development and testing. His 1945 report to Arnold, *Toward New Horizons*, was the blueprint for Air Force research and development for almost 50 years. The Budapest-born von Karman was recognized as one of the world’s leading aerodynamics and scientists, and is widely recognized as the father of modern aerospace science. The von Karman Gas Dynamics Facility at AEDC was named in his honor in October 1959.

## Dr. Frank L. Wattendorf

Dr. Frank L. Wattendorf — Penned the document called the Trans-Atlantic Memo to Major Gen. Franklin O. Carroll II June 19, 1945, that was the basis for what eventually became Arnold Engineering Development Center. He wrote it on a Paris-to-New York flight, with the news of his father’s death weighing on his mind. Wattendorf Memorial Highway is named in his honor.

## They did not act alone. . .

Arnold, von Karman and Wattendorf did not act alone. They had military help from Major Gen. Franklin O. Carroll II, ironically Arnold’s first commander, Col. P.H. Kemmer, Secretary of Defense James C. Forrestal, Secretary of the Air Force W. Stuart Symington, National Advisory Committee for Aeronautics Jerome C. Hunsaker and noted flying hero Lt. Gen. Jimmy Doolittle. Political help along the way came from U.S. Sen. Kenneth D. McKellar of Memphis, Tennessee Gov. Gordon Browning and the Tennessee General Assembly. The Scientific Advisory Group proved to be an invaluable ally.



Maj. Gen. Franklin O. Carroll II, the center’s first commander, drives in the first stake at AEDC.

## How much do you know about AEDC?

**Q: Top bidder ...** In late March 1950, the Air Force awarded its first construction contract. What was it for?

**A:** Cranes for the Engine Test Facility

**Q: A (future) president announces the news ...** What U.S. Senator, who later became the nation’s 36<sup>th</sup> president, first read the legislation aloud calling it “Arnold Engineering Developmental Center?”

**A:** Lyndon B. Johnson (D-Texas)

**Q: Bandit chaser ...** What AEDC commander rode against Poncho Villa and his

Mexican bandits earlier in the century?

**A:** Maj. Gen. Franklin O. Carroll II, Arnold’s first commander

**Q:** No. 3, but trying harder ... What potential site was third on the list for a New Air Force Development Center?

**A:** Tennessee Valley (Huntsville, Ala., or Camp Forrest)

**Q: First things first ...** What was the first major construction item to be completed?

**A:** Shipping and receiving

**Q: Media swarm ...** How many news me

dia members were accredited and cleared to attend the formal dedication of AEDC in 1951?

**A:** 235

**Q: Down-home cooking ...** After the dedication, 591 people could say they had fried chicken and apple pie with what well known public figure?

**A:** President Harry S. Truman, the keynote speaker

**Source:** *AEDC History* and Center Historian David Hiebert



The Scientific Advisory Group began it all with this report, *Toward New Horizons*. Today, AEDC’ is taking a new path outlined in an updated report, *New World Vistas*.